India's Collaboration with Gulf Co-operation Council for Energy Security: A Special Analysis of Crude Oil & Natural Gas

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SYNOPSIS

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Introduction:

In the present scenario, every country tries for their economic development. Every sphere whether national or international is affected by economic development, in other words it represents development of a country. Economic development is an interdisciplinary word which not only includes the production and market value of goods but also includes population's standard of living, Production, distribution, consumption of the nation and their results in form of development to achieve the target goals. It is closely related with social development as social efforts make economic development possible. It indicates that something going upward from downward and can be called 'Positive transformation'. This transformation is the result of sustainable development.

Energy is one of the fundamental source of universe, also an essential input to improve the quality of life and economic development. Energy is the key element in the production process and actually it is one of the most importantly concerning factor for any country. In other words energy is 'ability to do work', we use energy to do productive work. It is an important part of our daily lives in the form of crude and refined oil, gases, fuel, solar energy, wind energy, hydro power etc. It powers are vehicles, trains, planes, rockets. Energy from sun gives us light during the day and also can be utilize for producing electricity. By considering all the factors, it can be said that economic development is highly depend upon energy and a nation's strength to affect other countries is determined on the basis of availability and utilization of energy.

Energy contributes in production. It is distributive. Energy gives speed to the development of any country. Energy can neither be created nor be destroyed but can be transformed in other forms. Energy is the life of industrialization sector. It is the key element of the world. We can't imagine the world without energy. A country is secure Energy when it supply the Lifeline Energy to all their citizens and provide safe and convenient energy to satisfy their various needs & to meet their effective demand all the time at inexpensive and affordable costs. So, it is very important that a country has to supply energy to all their citizens. If energy met only to some citizens of any country, it cannot be a sustainable situation.

According to World Energy Assessment (by United Nations Development Programme):- Energy and the challenge of sustainability (2015), chapter- 4, defines Energy Security as- "The continuous availability of Energy in varied forms in sufficient quantities at reasonable prices."

"We are energy secure when we can supply lifeline energy to all our citizens irrespective of their ability to pay for it, as well as meet their effective demand for safe and convenient energy to satisfy their various needs at competitive prices, at all times and with a prescribed confidence level considering shocks and disruptions that can be reasonably expected." –Integrated Energy Policy (2006), (TERI) June 2009.

Energy is the basic necessity of the people. Basically it is the important part of our daily lives in form of oil, fuel, gas, coal, solar etc. Without energy industrialists can't do their productive work. This is the main reason behind demand of energy is never go downwards. So, it is mandatory to furnish 'Lifeline Energy' to all the citizens in accordance with their paying capacity. Energy consumption is not possible for those people who cannot afford energy at the market driven prices, in this condition State has to provide energy through giving subsidies to meet the lifeline energy to all the citizens and to provide energy to all citizens, is the prime objective of energy security.

"Energy Security ....: an assured access to energy resources, at affordable prices, to obtain sustainable economic growth rates and economic development." - Securing India's Energy Future, Colonel Devindar Kumar, Indian Army, October 2012.

In the present era, need of Energy Security is rising continuously. India is developing rapidly, as the ascending order of per capita income and demand of India's population is also rising. During same period, India transitioned from being World's 7^{th} largest primary energy consumer to 3^{rd} largest. Energy security has become a growing concern and in Indian perspective the cause of this growing energy demand is the need of energy is growing rapidly with growing population and rising income levels. Simultaneously India's dependence on imported energy has increased. India is mainly dependent on imports of crude oil and natural gas. It's oil imports are continuously rising, therefore dependence on oil imports is concerned with dubiety regarding availability accessibility of oil.

India's requirements of global energy is anticipated to enhance substantially. The threat of Energy security arises not only from the incertitude of accessibility and the monetary value of imported energy but also from the domestic disruption. Hence, India needs to apply the Energy Security also on the possible disruption or the deficit in domestic production.

India is a fast growing economy, according to International Monetary Fund's report of 2019 it has proved 5th largest economy after United States, China, Japan and Germany and 3rd largest energy consumer in the world after China and US. India has very limited reserves of crude oil and natural gas in the form to utilize it. According to PPAC Report 2019 (Petroleum Planning & Analysis Cell, Ministry of Petroleum & Natural Gas, Government of India), India ranked 23rd largest crude oil reserves by having approximately 600 Million tonnes (Mt) (around 4.5 billion barrels), 23th largest production by producing 39.5 Mt and 3rd largest oil consumer after US & China, by consuming 236.6 Mt and imports approximately 83% of its oil consumption. According to BP Statistical Review 2019, China, US and India together accounted for more than two thirds of the global increase in energy demand. In the sphere of Natural gas, according to PPAC report 2019, India ranked 22rd largest natural gas reserves by having 1.3 trillion cubic meters, 28th largest producer by producing 27.5 BCM and 14th largest consumer by consuming 58.1 BCM. India imports approximately half of its consumption of natural gas. According to a report of Oil and Gas industry by India Brand Equity Foundation (IBEF) India's primary energy demand is expected to increase threefold by 2035 to 1,516 Mt of oil.

India is collaboration with the world to give lifeline energy to their citizens. Gulf Co-operation Council (GCC) is a well known international organization in the sphere of energy. Gulf Co-operation Council is a international group and economic & political alliance of six countries lies in Middle East- Saudi Arabia, Kuwait, United Arab Emirates, Qatar, Bahrain and Oman. This organization was established in Riyadh, Saudi Arabia, in May 1981 to achieve the objective of unity among the members based on their similar cultural and political identity, their common purposes and one of the major base was their Arabic and Islamic roots. GCC nations have the treasure of rich energy resources and also take advantage by doing trade of it with the world. They have great reserves of crude oil &

natural gas. India and GCC nations are connected from long back by having common interest regarding trade which was carried out through Arabian sea.

Despite having ample resources & good reserves of energy, it is compulsory for India to import crude oil and natural gas due to excess demand and low production. India imports a large quantity of its requirements from Gulf countries. This is the main reason behind having good economic relations with Gulf Co-operation Council. GCC nations have great reserves of energy, particularly crude oil & natural gas, in comparison to other countries of the world. Therefore, India imports energy from Gulf countries to fulfill more than half of its energy requirements.

Statement of problem:

Energy is the key element in the production process and actually it is the most important factor for any country. Energy is one of the most fundamental resources of our universe, which plays a major role in the development in any sphere. Everything we do is connected to energy in one or in another form. It plays a most important role in the development of Industrial sector. In fact Energy is an important part of our daily lives in the form of oil, gases, fuel, and other renewable energies. The shortage of energy has serious effect on our economy because energy should consistent with environment, economic, and social sustainability to ensure regional sustainable development. Energy utilization in India differs from the industrialized countries. India has limited natural resources and the demand of energy of India is exceed than supply. Because of it India is facing a high degree of challenges to fulfil its energy requirements. India always tries to collaborate with the other countries of the world to fulfil its energy needs, in which the member countries of Gulf Co-operation Council plays most important role to fulfil India's excess energy requirements against limited energy reserves. Still, we see that India is suffering to fulfil its energy requirements which is exceed than the supply. Hence, the arena of this study includes analysis of India's strength of available energy resources in comparison with its demand, Government policies for the same and how India maintain its status quo in the same sphere by encouraging and maintaining its trade, economic and strategic collaboration with GCC nations.

Importance of the study:

The study of India's energy security and its relation with Gulf Co-operation Council is proving most important in present decade as the importance, demand and import of energy is increasing continuously. It is essential to study that how India is fulfilling its access energy demand. India's major energy suppliers are GCC nations having great resource & reserves of crude oil and natural gas. GCC nations are not India's relationship partner recently, they are related from many years ago. In present decade India is strongly tied up with Gulf Co-operation Council to accomplish its prime objective and fulfil its very demand of energy security. Energy security has become a necessity for India due to lack of useful energy resources. So now, India is mainly focusing on its policy for energy security and maintaining its ties and treaties with GCC Nations.

Review of literature:

Chandra, (2001) analyzed that energy is the key element in the production processes and the lack of energy storage have a strong effect on economy. Energy systems are closely related with environment, economic, and social sustainability to ensure the sustainable development in India. Energy planning is not an integrated activity. The Writer of this journal creates a strong linkage between energy consumption and economic growth and focuses on meeting increased energy consumption through energy supply expansion. It also focuses on the integrated approach and central theme of integrated energy plan is to prepare a decentralized energy plan to meet the energy needs for the development of alternate energy sources and the development of environment. It examines the resources which are available in India and also support efficient utilization of resources in India. This journal also give information about plans related to energy conservation, supply through energy plantation. The author did not write anything about the status of energy on international level and collaboration of India with the other countries on the basis of energy.

Painuly, (2009) analyzed that there is a need to improve the efficiency of energy and it considered one of the most desirable and effective measures to address the issue of energy security. In India and China, there is a major hindrance in achieving the potential quantity of energy due to lack of access to domestic finance. This paper aims to address the financial barrier in India and also focuses on

removing the financial barrier through development of commercial banking for energy efficiency, energy service company development and support, exploring the need for setting up guarantee facilities. The project succeeds in creating awareness and better understanding among the financial institutions in India on potential of energy efficiency.

Parikh & Ghosh, (2009) examined that India aspires for high economic growth of around 8-9 percent over next few years. Higher economic growth would lead to higher production, and consumption and more energy

use. At present time CO2 emission reduction are becoming an important point of debate all over the world and it's necessary to identify technological choices that reduce CO2 emissions. India's Integrated Energy Policy (IEP) report of planning commission presents different scenario of energy supply. It focuses on the two way interaction between energy sector (coal, oil, natural gas, and electricity) and other sectors of the economy.

Fujino, Shukla & Dhar, (2010) discussed about a large number of developing countries which cooperate with each other in the sphere of energy and also focus that these developing countries such as India would be important in achieving a low carbon future which can help to restrict rise in the global temperature. This paper reports about the future of low carbon in India. This Journal mainly focuses on the carbon and the renewable energy which is closely related to energy and also gives information about an integrated modelling framework is use for the alternative development pathways by India. This paper presents a different study of energy policy and this different study gives a different knowledge to us including that the low carbon future will be considered good for the renewable energy, under both of development pathways and also the share of renewable energy will be higher under a sustainable pathway. This Journal examines the role of carbon and renewable energy in energy policy.

The writer of this journal focused only on some key points of energy policy which are carbon and renewable energy but what about other main and basic forms of energy. As we know that carbon and renewable energy are important but still this journal missed some other important things of energy in which India face some problems and also plays an important role in the making of energy policy.

Singh, (2010) analyzed that economic development is most important for any country because the eradication of poverty and prosperity depend upon the economic development of a nation which is in turn dependent on the continuous supply of energy sources. So, energy is the most important factor for economic development. He examined that at present India is focusing on its economy and India's growing population and expanding economy takes a shift from agriculture sector to the Industrial, manufacturing, and service sector and these feature of Indian economy led to an increase in energy intensity. Though India is diverse in its energy requirements because the requirements and the demands of India is according to the development.

Brown & Jefferson, (2011) addressed that countries are implying that the energy policy and energy supply for their economic, Social and environmental development. This paper may cover local, regional, national and also global topics related to energy and energy policy. This journal focuses on the interest and the role of international agencies, governments, public sector, private sector and local communities and non-governmental organizations in the making of energy policy. So this journal covers a broad area with many topics related to particular interests including energy and environmental regulation, energy supply, energy security, and the quality and the efficiency and significance of energy services. Basic Contribution of the writer of this Journal examining the effectiveness of the approaches which are based on markets and also the governmental interventions, technology innovations where the broader policy implications can be recognized. Energy policy is required to be supported by balanced appraisal.

The editor explained many topics related to energy policy in broader way but he missed another side of energy policy which is related to the basic needs and consumption of energy.and the problems faced by counties in the national and global sphere. The editor write about the global energy issues but does not focuses on the threat between many countries on the basis of energy and its impact on globalization.

Ahn & Graczyk, (2012) analyzed rapidly increase in demand of energy and growing concern about economic and environmental consequence in India. It focuses on the understanding of energy policy framework governing India's energy sector. They provide a comprehensive overview of India's

energy sector and identify the challenges in achieving the country's energy objectives. It presents the understanding of India's political economy, energy policy framework, and key features of India's energy sector as a whole. It focuses on the basic three goals of India's energy sector: first, access to energy; second, energy security is driven by increasing dependence on imported fuels, which is crucial to meet the India's huge energy demand; third, India is dedicated to the mitigation of climate change. The entire study is based on all these objectives.

Omer, (2012) discussed that the increased availability of efficient energy services stimulates new development alternatives. The purpose of this journal is to examine several issues relating to environment, renewable energy and sustainable development from both current and future perspectives and it focuses on pattern of energy use and its impact on environment, renewable energy resources are graphically diffused. The consumption and the demand is greater than occupied by community to be supplied. It presents important strategy in finding a solution to the energy problem. This study highlights the energy problems and the possible savings that can be achieved through the use of renewable energy technology. This study also clarifies the background of the study and highlights the potential energy savings. Authors of this journal study about the energy savings and environment but does not examine the impact of these studies on energy policy making and missed that how environmental factor affects the global energy sector.

Vazhayil & Balasubramaniam, (2012) analyzed that energy planning should be proper and developmental for growth and sustainable development. It becomes most important in the context of climate change in developing countries. This paper focuses on the framework for energy strategy, Indian energy sector, and all emerging Economies. The authors talked about the designed methodology for application to the energy sector planning for India's 12^{th} five year plan for which the objectives of faster growth, better inclusion, energy security and for sustainable development. Authors missed the other important elements which play an important role in energy policy making in India. Also this paper does not talk about the co-operation of India with the other countries of the world in the sphere of energy.

Shearer, Davidson, & Gramling, Freudenburg (2013) talked about the national as well as international aspects of energy. It shows the similarity between governmental policies and privatized oil, coal, and oil sands on public lands. The sociologist Freudenberg argued that the diversion of public resources into private hands was made possible by a second diversion, means the diversion of attention. Freudenburg, with Gramling, later talked about the myth of 'Energy independence' was used to justify policies. They focus on the extension of energy.

The Authors talked about the concept of energy independence but at present we see that every country is dependent on other countries of the world in the sphere of energy, and this journal doesn't give information about the relations between many countries on the basis of energy which is the main basis of collaboration of the countries of the world at present.

Coyle and Simmons, (2014) majorly discussed about Global Energy Crisis. The authors considered energy as a very crucial element for the world, according to them 'Energy is everywhere and drives everything.' At the same time they are concerned about emerging global energy crisis and discuss alternate approaches for addressing them. Global energy crisis is actually a world issue and a grand challenge for all the countries. Every young social conscious inheritor should actively contribute by giving their solution to resolve the crisis and contemporary international efforts are also being done by Nations and international organizations to discover solutions for complex issues. The book is organized so as to present latest technologies, science and technological exposition to find multiple solutions to establish energy sustainability. Energy issues are complex and multidimensional. Hence, the editors also included social, political, technical, environmental and economic factors for each issue and present alternative and multidimensional approaches to find a solution.

Pradhan, (2014) explained the relationship shared between India and Gulf Co-operation Council goes back to centuries. From past to present they have common interest regarding trade, which was carried out through Arabian sea. The author analyzed the present relationship between GCC nations and India, which continues from long back owing to fact that both will benefit from their co-operation to each other. As the world, GCC Nations have also witnessed the rise of India as an world leader and India also admit its interest with Gulf Co-operation Council, as they play a crucial role in world economy

because of their great reserves of energy and trade potential. Therefore, India and GCC nations both corporate and encourage each other.

Sachdeva (2015) examined that 'How the global power map was shaped'. He defines the impact of imperialism, East-west divide, and cold war after the Second World War and focuses on the forces of globalization during the last decade of century on the forming of power equations. It also focuses on geopolitics and Geo-economics. It describes the Indian economic development and the foreign policy after cold war. India will be forced to calculate its energy security requirements within more general Geo-political environment that is characterized by rapid change and unpredictability. This Article also gives information that India launched its integrated energy policy and oil diplomacy in search of new energy assets to fulfil the energy requirements of its high energy growth.

Ganguli, (2016) analyzed the relevance of energy in the post- Cold War period. This article attempts to analyse a trend that shows how energy gains global relevance in international Scenario. At present time counties are facing a high degree of economic and environmental challenges to fulfil their energy and economic requirements. In post- Cold War period energy creates link for interdependence. Nations are dependent to the other countries of the world to fulfil their requirement of energy and economic needs.

Soni, Singh & Banwet, (2016) discussed to prioritize Indian energy sector projects namely, coal, gas, hydro etc. and discussed also about the multiple criteria decision making analysis. India's Energy sector is facing high degree of complexity in front of prioritized investment related capacity through energy projects. The finding can provide information regarding various possible investment options to the government or public sector on energy projects in India.

Wahid Al-Nadawi, (2017) analyzed how India, in the late 20^{th} and early 21^{st} centuries attempting to be an influential and effective power holder on regional and international level. To execute this, India aimed to improve its relations with the countries that already had productive international influence in order to accomplish its own interest to become a major regional power. The middle East was one of the region with which India worked to improved its relations and specially economic ties. The Author believed, by focusing on their economic and trade ties, both parties can expand their role to play on

regional and international level. Both corporate each other across the Indian Ocean. Numerous earners can be covered in the past decade by the ties of both parties and the major importance was given to trade, economic ties which particularly including the investment and energy supply, both oil and gas. Their economic ties and good trade relation can be proved much more beneficial to the both in future but despite all it was a compulsion for India to improve their relations with Gulf nations to fulfil its energy needs.

Pethiyagoda, (2017) highlighted the last decades relationship between India and the Gulf Co-operation Council. He examined that India and Gulf countries are still cooperating each other maintaining their relationship being driven almost integral by economic interest, which majorly includes energy. India's historic ties with the GCC nations constantly promoting and motivate the present economic leaders to strengthen current relations. Prime Minister Narendra Damodardas Modi seems to prioritizing GCC States by his new policy 'Link West' and making visits to the United Arab Emirates and Saudi Arabia. But the most important factor which can affect their ties, is their increasingly multipolar relations with the other external powers engaged in Middle East. The United States, Russia and China is back into the form to become more powerful Nations by maintaining their relations with the other powerful regions. In comparison wide economic sphere of the Asia makes it having a big and most important trade market than the West. India is facing challenges and competition in strengthening its ties with GCC Nations especially from Pakistan and China. China presently and Pakistan is historic rival of India, enjoying close relation with GCC states and opposed India's increasing ties & involvement with them. India continues to expand its ties to protect its own economic interests. GCC states & its policy makers encourage their relation and India to play a greater role in stabilizing its power and also strengthening internal stability.

Joshi and Powell, (2018) analyzed the Geo-political identity of India in relation with energy. despite of being a member of non-alignment movement, India emerged as a leading nation at Geo-political as well as at world level. Socio-economic progress with equality and justice is the key factor contributing to India's energy policy. India's energy consumption is going to be doubled, not only to improve standard of living but also for economic growth of the nation. As per the analysis done in the past few

years it has been concluded that the world's two largest economies India and China, sharing the same continent Asia, have emerged as tough competition in the sphere of energy consumption and Geo-political status.

Muthu, (2018) basically examined India’s source wise energy scenario from the last decade to present. Energy plays a vital role in the development of a nation over a region. He focused on the serious concern of excess energy demand than supply and over harvesting of limited natural resources. To fulfill its excess demand, India is dependent on domestic production and as well as the global imports. Increasing dependency on local and global levels in the sphere of energy is a serious concern. India's energy requirements are basically fulfilled by traditional energy resources such as coal, lignite, crude oil and petroleum products. Hence, dependency on conventional energy resources is greater than use of non-conventional. On the other hand energy consumption in rural areas of India is comprehensively dependent on non-conventional energy resources considering over extraction of conventional energy. In the present decade Indian energy markets leads more urbanization and enhancing globalization. Climate change in relation with over extraction of natural resources is another growing concern which leads environmental friendly, cheap in prise and sustainable energy alternatives. Many sustainable energy alternative are available such as solar energy, wind energy, hydroelectricity etc. would contribute to meet the energy demand. India's energy analysis reveals the consumption per GDP (energy intensity) of India. Comparison of energy intensity versus GDP per capita of various countries presented by the Author, which reveals the energy intensity of India is more than 1.3 times that of China, 3 times that of USA, 4 times that of Germany and 12 times that of Switzerland indicating the excess energy consumption enhancing the GDP and there is a very need of energy conservation for India.

Kulkarni & Pimpalkhare, (2019) analyzed India's reserves and also import diversification strategy of natural gas. The Author especially wrote about natural gas as it has become a basic sine qua non, the demand of which is increasing gradually. Domestic production of natural gas in India is only able to fulfil its requirement partially. To meet the expected increase in the demand of natural gas in coming years, India has to take measures and increase its imports from different countries to make a bridge

between demand and supply. Increasing dependence on other countries to meet its demand, India can become the point of criticism at regional and global level. Not only India's but also global demand for natural gas is expected to increase rapidly. India must ensure securing its energy by having a vigorous natural gas import diversification strategy. The Authors also focused on India's relationship with the gas producing countries and Geo-political evaluation of it, including significance of Indian import strategy.

Objectives:

1. To study available Energy resources and demand of India (Crude oil & Natural gas).
2. To clarify India's policy on Energy Security.
3. To evaluate India's collaboration with Gulf Co-operation Council in quest for Energy Security.
4. To analyse India's challenges in procuring the Energy requirements.

Hypotheses:

1. India has inadequate Energy resources against excess demand.
2. India has not an influencing Energy policy so far.
3. India's collaboration and major treaties with Gulf Co-operation Council, is fulfilling its energy requirements up to some extent.
4. India is facing competition and economic challenges in procuring the Energy requirements.

Research Methodology:

- Research Design: Descriptive and Analytical.
- Data collection: Data will be collected from secondary sources; books, journals, articles, papers, newspapers, Government policies & MOUs, reports of national and international organizations and all authentic websites of internet & Government documents.
- After collection of data, the data will be analyzed accordingly, generalization will be drawn and hypotheses will be tested for attractive presentation of data. Diagrams, pictures and charts will be used in the presentation.

Chapterisation:

1. Introduction.

2. Available Energy resources and demand of India.
3. India's policy on Energy Security.
4. India's collaboration with Gulf Co-operation Council in quest for Energy Security.
5. India's challenges in procuring the Energy requirements.
5. Conclusion.

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